

# SUBJECT INDEX

Vol. 137B, Nos. 1-4

- Acanthopagrus schlegelii*, 421  
Active-site, 169  
ADA1, 247  
ADA2, 247  
Adaptation, 95, 341  
Adenosine, 297  
Adenosine deaminase, 247  
Adenosine monophosphate (AMP), 309  
Adipocyte, 309  
Aerobic capacity, 101  
Alanine aminotransferase, 197  
Aldolase, 115  
Amino acid, 89  
Amino acid sequence, 219  
Amphioxus, 131  
Anadromous salmonids, 43  
Annelida, 443  
Anserine, 81  
Antarctic, 341  
Antimicrobials, 413  
APMA-activated, 363  
Archetype, 131  
Arginine, 209  
Ascorbic acid, 35  
Aspartic proteinase, 373  
Atlantic salmon, 43  
ATP, 297  
ATPase, 297  
Autooxidation, 401  
Avian, 89
- Beluga, 401  
Binding protease, 139  
Biomarker, 391  
*Biomphalaria glabrata*, 179  
Biosynthesis, 455  
Black seabream, 421  
Blubber, 391  
Boar spermatozoa, 265  
*Bos taurus*, 317  
*Branchiostoma*, 131  
Bristletail, 75  
Broiler, 35  
Broilers, 383
- c-DNA, 443  
Calcium permeability, 235  
Camel, 159  
Carnosine, 81  
Carnosine related compounds (CRC), 81  
 $\beta$ -carotene, 179  
Carp, 107  
Catfish, 101  
Cathepsin D, 373  
Cathepsin L, 107  
cDNA, 373  
Cerulein, 455  
Characterization, 159  
Chicken, 89, 247, 433  
Chinese cobra, 219  
Cholesterol, 187  
Chymotrypsin, 287  
Chymotrypsin inhibitor, 219
- Citrate synthase, 101  
Cladocera, 287  
Cloning, 169  
Cod, 351  
Common dolphin, 391  
Condition factor, 421  
Copper, 225  
Copper accumulation, 225  
Coral, 11  
Corticosterone, 35  
Crude protein, 331  
Crustacea, 287  
Crustacean molt, 235  
Crystalline amino acid, 209  
Cuticle, 235  
Cyclic AMP, 309  
Cysteine protease, 21
- Daphnia*, 287  
*Delphinapterus leucas*, 401  
Desaturation, 49  
Detoxification, 95  
Diet, 179  
2',7'-Dichlorodihydrofluorescein diacetate (DCF), 81  
Dietary protein, 383  
Differential display, 65  
Digestive enzymes, 331  
Digestive gland, 297  
Digestive vacuole, 21  
Digoxin, 317  
Dihydrorhodamine 123 (DHR), 81  
Dipeptidyl peptidase IV/CD26, 247  
DNA oxidative damage, 81
- Echinostoma caproni*, 179  
*Echinostoma trivolvis*, 179  
Eicosanoid metabolism, 413  
Embryogenesis, 159  
Embryonic development, 463  
Endo-1,3- $\beta$ -D-glucanase, 169  
Endurance, 187  
Energy balance, 65  
Energy metabolism, 463  
Enterocytes, 49  
Enzyme, 101, 197  
Enzyme evolution, 169  
Enzyme regulation, 115  
Epithelium, 21  
Erythrocyte, 151  
Esterase, 159  
Estrone-3-sulfate, 317  
Evolution, 131, 255, 443  
Exercise, 187  
Expression, 131, 433, 475
- Fatness, 433  
Fatty acids, 235, 487  
Feeding experiment, 209  
Feeding type, 95  
Fibrous sheath, 509  
Fish, 43, 139, 197, 331, 363
- Flagellum, 509  
Flow cytometry, 81  
Fluorescence, 115  
Food deprivation, 421  
Food digestion, 21  
Free amino acids, 463  
Fructose-1,6-bisphosphatase, 115  
Functional stability, 341
- Gadids, 351  
Galardin, 363  
*Gallus domesticus*, 115  
Gas chromatography/mass spectrometry, 455  
Gel-forming macromolecules, 475  
Gene duplication, 279  
Gene family, 279  
Gene structure, 351  
Genetic linkage, 433  
Genome duplication, 255  
Globin, 443  
GLP-1, 255  
GLP-2, 255  
Glucagon, 255  
Gluconeogenesis, 115  
Glucose 6-phosphate dehydrogenase, 101  
Glutathione S-transferases (GST), 95  
GPT, 197  
Growth hormone, 421  
Growth hormone receptor, 421
- H1.z variant, 151  
*Haemadipsa zeylanica*, 443  
Hamster, 509  
Heat stress, 35  
*Helisoma trivolvis*, 179  
*Helix aspersa*, 297  
Hepatocytes, 49  
Hepatopancreas, 21, 373  
Histone H1, 151  
HMGB, 131  
hnRNP, 89  
Hormone regulation, 255  
Host regulation, 463  
Hoverflies, 95  
hsp70, 35  
Human spermatozoa, 265  
*Hyalomma dromedarii*, 159  
Hypothalamus, 65
- Innate immunity, 413  
Insect, 75  
Intracellular protease, 139  
Intron, 21  
Isolation, 219  
Isozyme, 247
- Juveniles, 209
- Kinetics, 341  
Krebs cycle, 463

## Subject Index

- Lactate, 187  
 Larvae, 487  
 LC-MS/MS, 509  
 Lipase, 159  
 Lipid composition, 235  
 Lipid content, 391  
 Lipofuscin, 187  
 Lipogenic gene, 433  
 Lipophilicity, 391  
 Liver, 225, 247, 373  
 Liver transport, 317  
 Lizard fish, 139  
 Low temperature, 225  
 Lutein, 179  
 Lysosomal cysteine proteinase, 107  
  
 MALDI-TOF MS, 265  
 Marine invertebrates, 413  
 Marine mammals, 391  
 Marine sponges, 413  
*Marsupenaeus japonicus*, 209  
 Matrix metalloproteinases, 363  
 Melatonin, 43  
 Membrane adaptation, 235  
 Membrane lipids, 235  
 Metabolism, 101, 331  
 Metallothionein, 225  
*Metapenaeus ensis*, 21  
 Modeling, 341  
 Molecular cloning, 107  
 Mollusc, 475  
 Mollusk, 169  
 Mollusks, 297  
 Muscle, 139  
 Muscle protease, 139  
 Muscovy duck, 151  
*Myathropa florea*, 95  
 Myocardium, 187  
 Myofibril degradation, 139  
 Myofibril-bound serine protease, 139  
 Myoglobin, 341, 401  
  
*N*-Acetylcarnosine, 81  
*N*-Acetylhistidine, 81  
*N*-Glycanase, 247  
*Naja atra*, 219  
 Neotropical fish, 225  
 Nervous ganglia, 297  
 Norspermidine, 75  
 Norspermine, 75  
 North-western Spain, 391  
 Northern blot, 131  
 Nuclear cathepsin L, 21  
 Nucleotidases, 297  
 Nucleotide sequence, 443  
 Nutrition, 331, 463  
  
 Obesity, 65  
 Oocyte, 11, 21  
  
 Oogenesis, 11  
 Ophidine, 81  
 Organic anion transporting polypeptide, 317  
 Organic anions, 317  
 Ouabain, 317  
 Ovary, 351  
 $\beta$ -Oxidation, 49  
 Oxidative stress, 35, 383  
 Oxygen binding, 401  
  
 Palm oil, 49  
 Parr-smolt transformation, 43  
 PCR, 279  
 Pelagic food chains, 487  
 Peptide mass finger printing, 509  
 Phosphodiesterase, 309  
 Phospholipase A2, 413  
 Phospholipids, 265  
 Phosphorylation, 401, 509  
 Phyllosoma, 487  
 Phylogenetic tree, 373  
 Phylogenetics, 131  
 Phylogeny, 401  
 Piezophilic bacteria, 455  
 Pineal organ, 43  
 Pintado, 331  
 Plasma membrane, 309  
 Plasma uric acid, 383  
 Plasmalogens, 265  
 $^{31}\text{P}$  NMR spectroscopy, 365  
 Polyamine, 75  
 Polymorphism, 151  
 Polyunsaturated fatty acids, 49, 455  
 Porifera, 413  
 Poultry, 89  
 Prey, 487  
 Primary structure, 443  
 Processing, 107  
*Prochilodus scrofa*, 225  
 Proglucagon, 255  
 Propeptide, 21  
 Protein synthesis, 463  
 Protein-protein interaction, 115  
 Proximate composition in liver, 421  
*Psammomys obesus*, 65  
*Pseudoplatystoma corruscans*, 331  
 Purification, 107, 159  
 Pyruvate dehydrogenase, 509  
  
 RACE, 89, 443  
 Radioactive, 209  
 Radioreceptor binding, 421  
 Rainbow trout, 49  
 Reactive oxygen species (ROS), 81  
 Reproductive cycle, 101  
 Retinoids, 391  
 Rhythm, 43  
 Ribonuclease protection assay, 421  
 RNA, 101  
  
 RNA binding proteins, 89  
  
 Scleractinia, 11  
 Sea bass, 279  
 Sequence homology, 169  
 Sequencing, 89  
 Serine protease, 139  
 Serine proteases, 287  
 Serine proteinases, 287  
 Sex determination, 279  
 Shrimp, 209  
 Siluriformes, 331  
 Silverfish, 75  
 Single-chain form, 107  
 Snake venom, 219  
*Sox* genes, 279  
 Spermatozoa, 509  
 Spermidine, 75  
 Spiny lobster, 487  
 Springtails, 75  
 Squid (*Todarodes pacificus*), 373  
*SREBP*, 433  
 Steroidogenesis, 351  
 Steroidogenic acute regulatory protein, 351  
 Steroids, 351  
 Sterol, 487  
 Substrate-SDS-PAGE, 287  
 Superoxide dismutase, 187  
 Supplement, 209  
*Syrphus ribesii*, 95  
  
 Taurocholate, 317  
 Teleost, 341  
 Teleost fish, 255  
 Temperature, 341  
 Thermospermine, 75  
 Thin layer chromatography, 179, 265  
 Thyroxine, 43  
 Tick, 159  
 Tissues, 363  
 3T3-L1, 309  
 Todarepsin, 373  
 Toxins, 413  
*tpaD* gene, 373  
 Triglyceride, 187  
 Triiodothyronine, 421  
 Trypsin, 287  
 Trypsin-activated, 363  
 Two-chain form, 107  
  
 Vitellogenin, 11  
  
 Water permeability, 235  
 Water pH, 225  
  
 Yolk, 11

**AUTHOR INDEX**  
*Vol. 137B, Nos. 1-4*

- Abdel-Gany, S.S., 159  
Abe, H., 81  
Agafonova, E.V., 169  
Agrawal, M.K., 287  
Aguilar, A., 391  
Alizadeh, M., 433  
Amano, M., 373  
Anderson, M.J., 235  
Arnhold, J., 265  
Assaf, S., 433
- Babcock, M.J., 341  
Ballance, S., 475  
Bauer, U., 287  
Bell, J.G., 49  
Blakely, J.A., 401  
Blemings, K.P., 383  
Bogdanova, E.A., 169  
Bogo, M.Reis., 297  
Boldyrev, A., 81  
Bonan, C.D., 297  
Borges, E., 297  
Borrell, A., 391  
Bulygina, E., 81
- Campbell, P.J., 49  
Canario, A.V.M., 279  
Carey, G.B., 309  
Carrier, E., 197  
Carvalho, C.d.S., 225  
Cashon, R.E., 341  
Chan, O., 455  
Chauhan, D.P., 197  
Cheng, C.H.K., 421  
Chu, J., 131  
Cognato, G.d.P., 297  
Collier, G.R., 65  
Consoli, F.L., 463
- Daval, S., 433  
Deng, L., 421  
Dev, S.A., 187  
Dias, R.D., 297  
Dibner, J.J., 89  
Dick, J.R., 49  
Dobryszewski, P., 115  
Döring, B., 317  
Douaire, M., 433  
Dziewulska-Szwajkowska, D., 115  
Dzugaj, A., 115
- Ebbesson, L., 43  
Edens, F.W., 35  
Eisen, E.J., 35  
Elyakova, L.A., 169  
Evans, R.T., 179
- Fahmy, A.S., 159
- Failing, K., 317  
Fang, J., 455  
Fauth, M.d.G., 297  
Fernandes, M.N., 225  
Fonseca-Madrigal, J., 49  
Forcada, J., 391  
Francis, F., 95  
Fried, B., 179  
Fujinoki, M., 509
- Galay-Burgos, M., 279  
Gebauer, C., 287  
Gey, C., 265  
Geyer, J., 317  
Giamario, C., 89  
Glander, H.-J., 265  
Goetz, F.W., 351  
Górnicka-Michalska, E., 151
- Hamana, K., 75  
Hara, K., 139  
Hara, K., 107  
Haubrug, E., 95  
Havenstein, G.B., 35  
Hooper, J.N.A., 413  
Howard, M., 475  
Hu, K.-J., 21
- Ichishima, E., 373  
Iliev, D.B., 351  
Imagawa, S., 11  
Irwin, D.M., 255  
Ishihara, T., 139  
Ishihara, T., 107  
Ishikawa, M., 209  
Ishimoda-Takagi, T., 509  
Iwaki-Egawa, S., 247
- Jaensch, H., 287  
Jeffs, A.G., 487  
Jin, Y., 219
- Kalanxhi, E., 401  
Karpowicz, P.A., 401  
Kato, C., 455  
Kawabata, C., 373  
Kawamura, T., 509  
Klandorf, H., 383  
Kochman, M., 115  
Komai, T., 373  
Koshio, S., 209  
Kovalchuk, S.N., 169  
Kowalski, A., 151  
Kozhemyako, V.B., 169  
Kulczykowska, E., 43
- Lagarigue, S., 433  
Lødemel, J.B., 363
- Leclercq, B., 433  
Lee, B.R., 373  
Leßig, J., 265  
Leinsoo, T., 81  
Leung, P.-C., 21  
Li, D.-S., 219  
Lin, H.R., 421  
Liu, M., 131  
Liu, Z., 131  
Llewellyn, L., 279  
Lorenz, M.W., 285  
Lu, Q.-M., 219  
Lukyanov, S.A., 169  
Lundstedt, L.M., 331
- Machin, M., 383  
Madden, P.W., 341  
Mahmoud, K.Z., 35  
Marin, A., 169  
Martin, B.M., 401  
Mazur, A.K., 169  
McCauley, L.A.R., 351  
McCoy, D.W., 89  
McCrohan, C.R., 475  
McKay, D., 455  
McMillan, J.S., 65  
Mähre, H.K., 363  
Melo, J.F.B., 331  
Michel, J., 433  
Miller, T.J., 235  
Miyagawa, K., 139  
Mohamed, S.A., 159  
Mohamed, T.M., 159  
Mooney, B.D., 487  
Moraes, G., 331  
Mozdziak, P.E., 89  
Mylonas, C.C., 279
- Nakano, Y., 11  
Namiki, C., 247  
Nevalainen, T.J., 413  
Ng, W.-K., 49  
Nichols, P.D., 487  
Niitsu, M., 75  
Norberg, B., 351  
Nozaki, Y., 107  
Nozaki, Y., 139
- Ohkubo, M., 139  
Ohtake, H., 509  
Okuno, M., 509  
Olsen, R.L., 363  
Oohara, I., 197  
Osatomi, K., 139  
Osatomi, K., 107
- Palyga, J., 151  
Petrushanko, I., 81  
Petzinger, E., 317

# Author Index

Phillips, K.L., 487  
Phleger, C.F., 487  
Pitel, F., 433  
Pubill, E., 391

Quinn, R.J., 413

Raafat Michael, F., 209  
Rasskazov, V.A., 169  
Ravi Kiran, T., 187  
Rebrikov, D.V., 169

Sansom, M., 433  
Sato, T., 455  
Schiller, J., 265  
Selistre de Araujo, H.S., 225  
Shah Alam, Md., 209  
Sheehan, J.K., 475  
Shenouda, S., 197  
Sherma, J., 179  
Shimizu, N., 509  
Shishikura, F., 443  
Simoyi, M.F., 383  
Singh, S.N., 197  
Smith, S.D., 235  
Sokolowska, E., 43  
Sova, V.V., 169

Srivastava, A.S., 197  
Stefansson, S., 43  
Stewart, J.M., 401  
Süß, R., 265  
Subramanyam, M.V.V., 187  
Suzuki, T., 197  
Sweeney, G.E., 279

Takvam, B., 43  
Teshima, S.-i., 209  
Thatcher, B.J., 401  
Thornton, D.J., 475  
Tocher, D.R., 49  
Toda, T., 509  
Tornero, V., 391  
Trevaskis, J., 65  
Tripathi, G., 101  
Tsubone, S., 81  
Tsunemoto, K., 107

Uemiya, H., 75

Vanhaelen, N., 95  
Vayda, M.E., 341  
Verma, P., 101  
Vignal, A., 433  
Vinson, S.B., 463

von Elert, E., 287  
Vuaden, F.C., 297

Walder, K., 65  
Wang, W.-Y., 219  
Wang, Y., 131  
Watanabe, T., 11  
Watanabe, Y., 247  
White, K.N., 475  
Williams, E.E., 235  
Winberg, J.-O., 363  
Windmill, K., 65

Xiong, Y.-L., 219  
Xu, A., 131

Yamaoka, S., 509

Zanuy, S., 279  
Zhang, S., 131  
Zhang, W.M., 421  
Zhang, X., 309  
Zhou, L., 255  
Zhou, X.-D., 219  
Zhu, S.-W., 219  
Zitt, A., 287  
Zmojdian, M., 115

